

Myopia's Evolutionary Benefit as an Enhancer of Infrared Vision

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Simon Edwards

Research Acceleration Initiative

Introduction

Evolutionary biologists have been stumped by the prevalence of myopia in modern humans i.e. it is a condition that seems, at least, to have little apparent survival benefit for hunter-gathers and is rarely seen in other animal species. Humans and primates alike lack an apparent capacity for infrared vision while other animal species have a well-established capacity to perceive infrared light.

Abstract

A hint as to what might be going on lies in the ophthalmic phenomenon known as "stabilization" in which those suffering from myopia experience a decline in their visual acuity that may begin in childhood or adolescence, but which halts in the late 20s. This stabilization phenomenon strongly implies that myopia is being triggered by and halted by a genetic program and not as a result of a chance mutation. It is exceedingly unlikely that a genetic aberration leading to a disease would be later, perchance, augmented by exactly the sort of chance mutation needed to halt the progression of that very disease.

The corneal distortion associated with myopia, although it disrupts the ability to focus light properly, has the secondary effect creating zones in which light is intensely focused on subsections of the retina not unlike the phenomenon of water at the surface of a swimming pool creating striations of magnified light on the floor of the pool. Although infrared light is not actively perceived, the bombardment of retinal zones with IR would cause temporary blindness in those zones, which to a human, could be perceived as an area of whiteness in a dark setting. Even if humans cannot directly perceive IR light, they can perceive the after-effects of having been exposed to it. This is hardly a controversial claim given that it is well-established that intense IR exposure can damage vision (not to mention, ultrasonic acoustic energy can damage hearing.)

Given that hunter-gatherers work as a group to identify, stalk, surround, and ultimately, kill their prey, having packs of hunters with complementary abilities would provide an evolutionary advantage. An individual hunter-gatherer with poor eyesight but with the ability to spot white aberrations in their visual field associated with the body heat of prey would serve to enhance that group's ability to hunt in the darkness.

If such a hunter-gatherer were entirely blind, they would not be able to keep from tripping over simple obstacles and would not be able to maintain an awareness of their position relative to the other hunters. As such, it makes sense that human myopia just so happens to present in a fashion that enables perfect

vision in youth and imperfect vision in adulthood without degenerating to the point of total blindness.

Conclusion

Establishing an evolutionary basis for myopia should obviate the perceived need to expend resources researching other proposed causes of myopia such as computer usage and will hopefully put to bed, once and for all, this unsolved mystery of evolutionary biology.